

REMARKS

Applicants appreciate the Examiner's acknowledgment of the claim for priority under 35 USC 119.

SPECIFICATION AND TITLE

The original title has been deleted and replaced with the new title suggested by the Examiner.

The specification has been amended to correct the informalities cited by the Examiner.

No new matter has been added by the amendments to the specification and title.

DRAWINGS

Being submitted concurrently herewith is a letter requesting approval of changes to the drawings in which it is being requested that the section views "A-A" in Figs. 2, 4, 5, 7, 8, 11, 13, 14, 16, 17, 19, 20, 22, 23, 25-27, 29, 32, 33, 37 and 38 be designated by an Arabic numeral corresponding to the view number of the sectional view. A bottom label sign has been added to Fig. 2 and the reference numeral 81 in Fig. 4 has been moved up and to the right of its leader line.

CLAIM OBJECTIONS AND REJECTIONS UNDER 35 U.S.C. § 112

Claims 1-17 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for the reasons set forth in numbered paragraphs 6-19.

Claims 7-11, 14 and 17 have been cancelled and remaining claims 1-6, 12, 13, 15 and 16 have been amended to overcome the objections and rejections.

CLAIM REJECTIONS UNDER 35 U.S.C. §102

Claims 1 and 7 were rejected under 35 U.S.C. §102(b) as being anticipated by Ito et al. U.S. Patent No. 5,660,045 for the reasons set forth on pages 9 and 10 of the Office Action.

Claims 1, 4 and 7 were rejected under 35 U.S.C. §102(b) as being anticipated by Kuroda et al. U.S. Patent No. 4,898,001 for the reasons set forth on pages 11, 12 and 13 of the Office Action.

Claims 1 and 7 were rejected under 35 U.S.C. §102(b) as being anticipated by Kusaba et al. Japanese Patent No. JP-355046309-A for the reasons set forth on pages 13, 14 and 15 of the Office Action.

Claims 1, 4 and 7 were rejected under 35 U.S.C. §102(b) as being anticipated by Iizuka et al. Japanese Patent No. JP-362175524-A for the reasons set forth on pages 16, 17 and 18 of the Office Action.

Claims 1-3, 7, 9, 10, and 12-17 were rejected under 35 U.S.C. §102(b) as being anticipated by Iizuka et al. Japanese Patent No. JP-361119920-A for the reasons set forth on pages 18, 19 and 20 of the Office Action.

Claims 1-3, 7, 9, 10 and 12-17 were rejected under 35 U.S.C. §102(b) as being anticipated by Kuroda et al. U.S. Patent No. 5,069,029 for the reasons set forth on pages 21, 22 and 23 of the Office Action.

Claims 1, 4 and 7 were rejected under 35 U.S.C. §102(b) as being anticipated by Shohei et al. Japanese Patent No. JP-08135969 for the reasons set forth on pages 23, 24 and 25 of the Office Action.

For the reasons set forth hereafter, it is submitted that claims 1-6, 12, 13, 15 and 16, as amended, are patentable.

ALLOWABLE SUBJECT MATTER

Claims 5, 6, 8 and 11 were stated to be allowable if rewritten in independent form and amended to overcome the objections and rejections under 35 U.S.C. §112.

Claims 8 and 11 have been cancelled in this application and are being prosecuted in co-pending Divisional Application Ser. No. 10/334,068. Claims 5 and 6 remain dependent from claim 1 since it is believed claim 1, as amended, is now patentable.

PATENTABILITY OF THE CLAIMS

Applicant's invention relates to a gas turbine combustor having a combustion chamber and annular premixing fuel passage therein formed by inner and outer walls. A plurality of premixing nozzles are mounted in spaced relationship in the premixing fuel passage. A plurality of spaced openings are formed in the outer wall of the premixing fuel passage, through which air flows to mix with fuel from the premixing nozzles and form a swirling flow with respect to each of the premixing nozzles. The spaced openings are disposed in a circumferential direction whereby one opening is provided for each of two adjacent nozzles. For each two adjacent nozzles, a swirling flow of air and fuel is formed around each nozzle with a swirling flow rotating in opposite directions.

Remaining claims 1-6, 12 and 13 are directed to a gas turbine combustor and claims 15 and 16 are directed to a premixing method for a gas turbine combustor.

Applicants believe that none of the cited references disclose the significant feature of the present invention of one opening in the outer wall of the premixing flow passage for each of two adjacent nozzles. Neither do any of the references teach forming a swirling flow around each of two adjacent nozzles with the swirling flows rotating in opposite directions.

Moreover, each of the cited references contains other deficiencies as discussed hereafter.

Although like the present invention, Ito et al. provides the swirling to the premixed gas, swirler vanes are provided at the outlet of the premixer, which is contrary to the invention of the present invention in which the premixing is advanced by the swirling within the premixer.

With respect to Kuroda et al.'001, it is believed the Examiner has misunderstood the head combustion chamber (diffusive combustion chamber) 11 as the premixing chamber. At the inlet of the actual premixer no means for advancing gas mixing as in the present invention is provided.

Although the Kusaba et al. reference discloses a premixer which generates swirling flows, in order to generate the swirling flows, (air is introduced from a tangential direction) as in a conventional manner as disclosed in Fig. 5, which is totally different and much more complex in comparison with the present invention.

With respect to Iizuka et al., like the Kuroda'001 above, no mechanism for advancing gas mixing is provided at the inlet of the premixer.

With respect to Kuroda et al.'029, like Kuroda et al.'001, no mechanism for advancing gas mixing is provided at the inlet of the premixer.

Yoshida et al. discloses the existence of break away vortexes downstream of the air flow rate regulating valve of which the vortex axis is perpendicular to the main steam in the premixer. The gas mixing advancing effect of such vortexes is extremely low in comparison with the swirls of the present invention of which the axis is in parallel with the main stream.

In view of the foregoing amendments and remarks, Applicants contend that this application is in condition for allowance. Accordingly, reconsideration and reexamination are respectfully requested.

Respectfully submitted,



Gene W. Stockman
Registration No. 21,021
Attorney for Applicant

MATTINGLY, STANGER & MALUR
1800 Diagonal Road, Suite 370
Alexandria, Virginia 22314
(703) 684-1120
Date: December 15, 2003